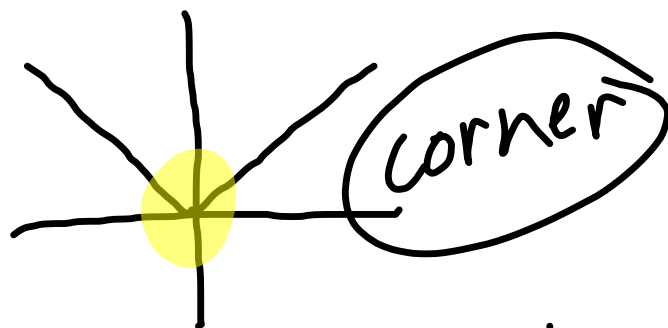


3.2 differentiable

f is differentiable at $x=c$

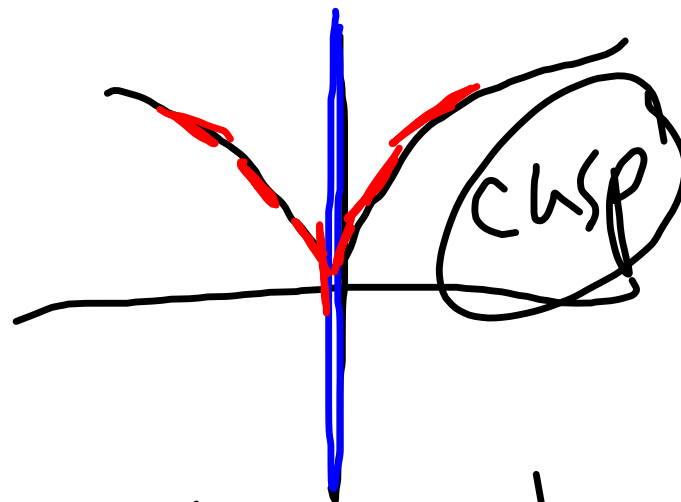
means $f'(c)$ exists

1.

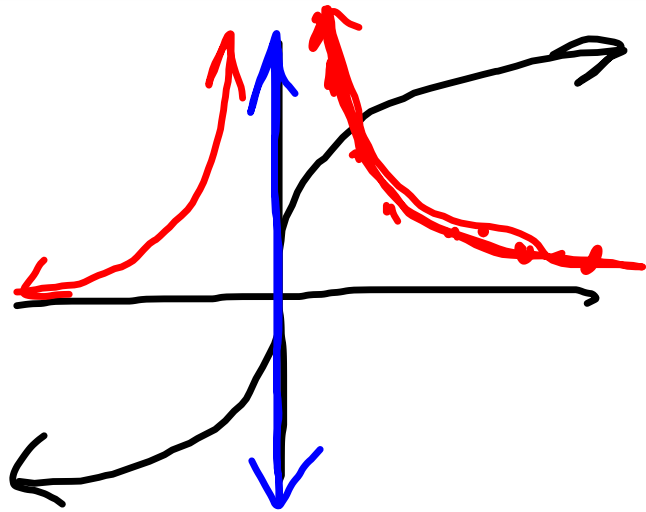


is f differentiable
at $x=0$? no
too pointy

2.



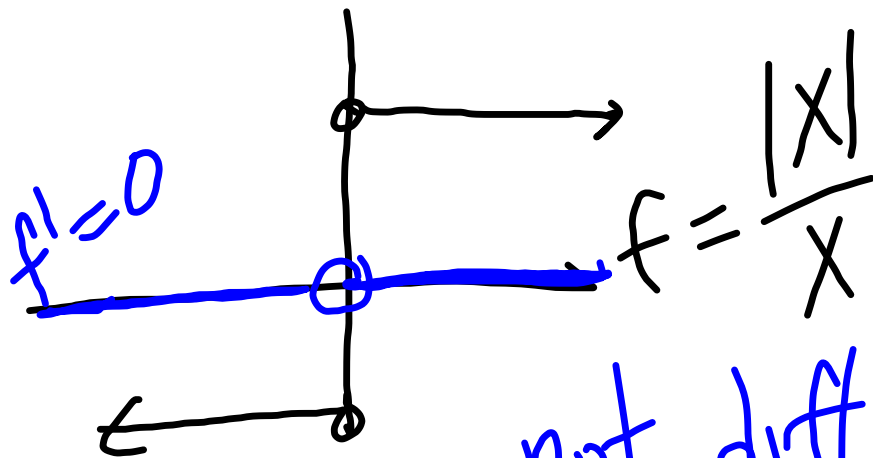
no, too pointy



no.

slope of tan
is ∞ *

not differentiable



not diff at $x=0$

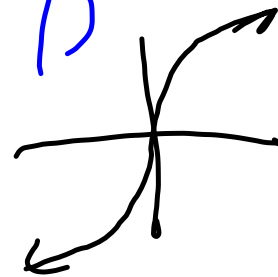
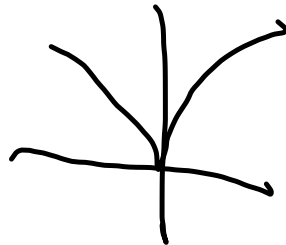
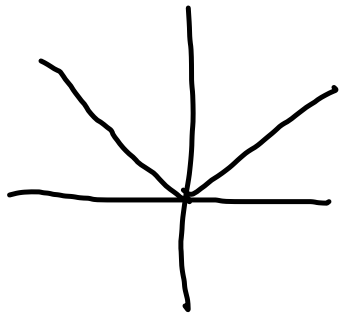
Thm 1. p 113

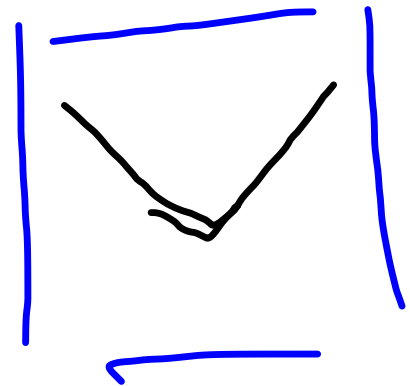
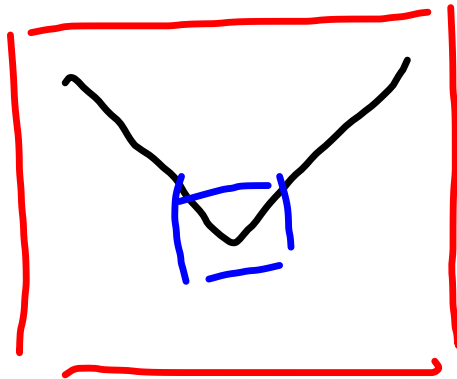
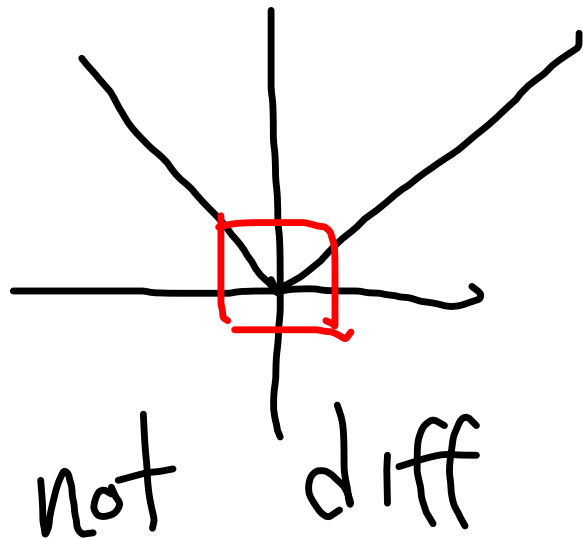
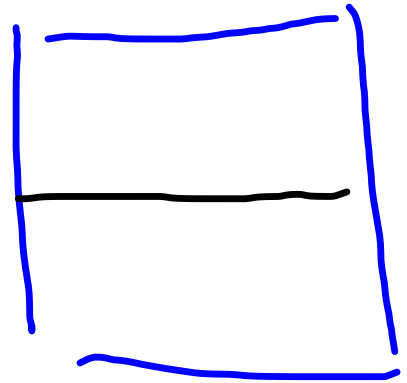
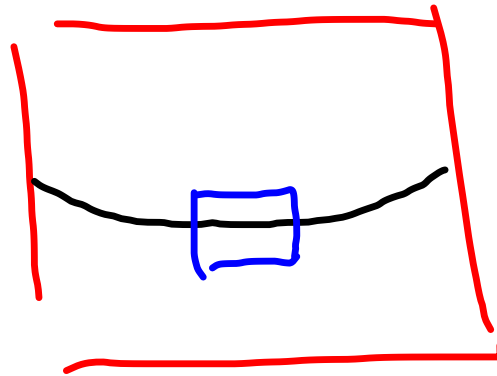
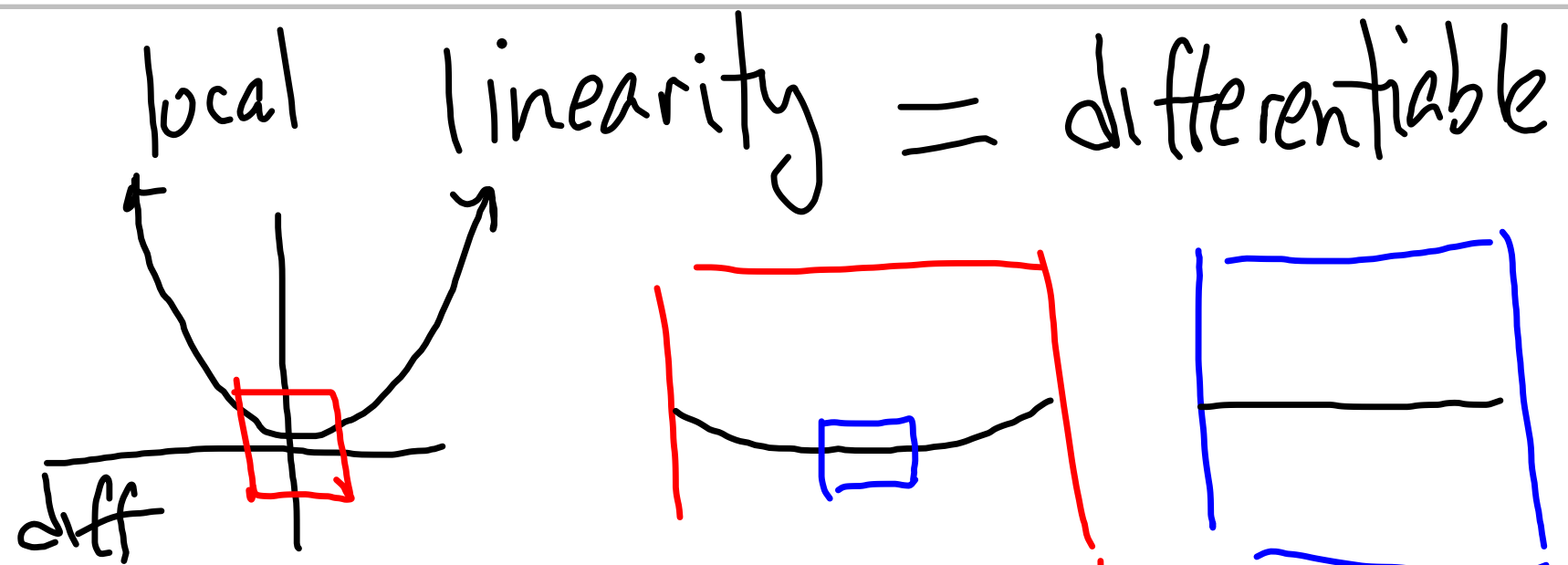
if f is diff at $x=a$
then f is cont. at $x=a$

don't assume the converse is true

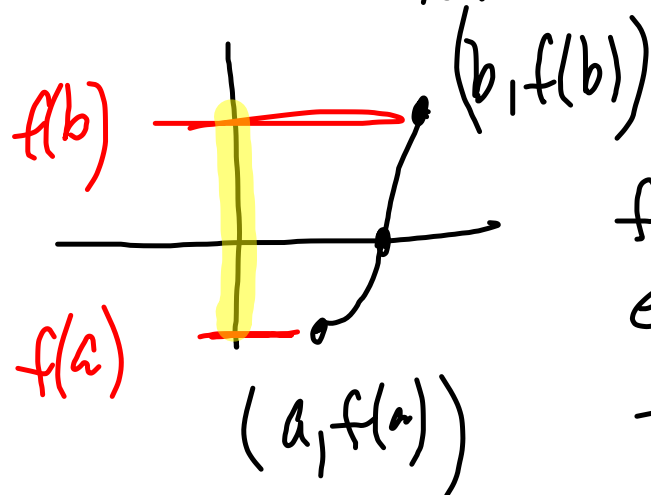
if f is cont at $x=a$
then is f diff at $x=a$?

not always





Thm 2 Intermediate value thm
for continuous function



$f(x)$ takes on
every value between
 $f(a)$ and $f(b)$

Int. value thm for derivatives

$f'(x)$ takes on every
value between $f'(a)$ and $f'(b)$

use calc to take derivative

numerical derivative **N DER**

TI Nspire - **nDeriv**

